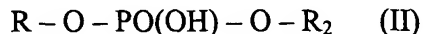


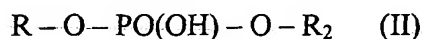
CLAIMS

1. A phosphatidyl-L-serine product having a fatty acid composition identical to that of soybean lecithin and a degree of peroxidation of less than 5 produced by reacting a phosphatide of formula (II):



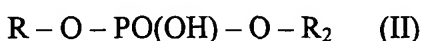
wherein R is diacylglycerol and R₂ is CH₂ – CH₂ – NH₂ or CH₂ – CH₂ – N(CH₃)₃, with a primary or secondary alcohol with a chain length of between C2 to C4, optionally substituted with one or more polar groups selected from the group consisting of amino, hydroxy and carboxy, in a single aqueous phase in the presence of an effective amount of phospholipase D with transphosphatidylase activity produced from a *Streptomyces hachijoense* strain to catalyze the reaction, wherein said phospholipase D is purified by eluting on an anionic cationic exchange resin at a pH of 6.2.

2. A phosphatidyl-L-serine product having a fatty acid composition identical to that of egg lecithin and a degree of peroxidation of less than 5 produced by reacting a phosphatide of formula (II):



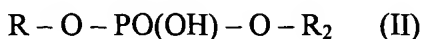
wherein R is diacylglycerol and R₂ is CH₂ – CH₂ – NH₂ or CH₂ – CH₂ – N(CH₃)₃, with a primary or secondary alcohol with a chain length of between C2 to C4, optionally substituted with one or more polar groups selected from the group consisting of amino, hydroxy and carboxy, in a single aqueous phase in the presence of an effective amount of phospholipase D with transphosphatidylase activity produced from a *Streptomyces hachijoense* strain to catalyze the reaction, wherein said phospholipase D is purified by eluting on an anionic cationic exchange resin at a pH of 6.2.

3. A phosphatidyl-L-serine product having a fatty acid composition identical to that of soybean lecithin and a degree of peroxidation of less than 5 produced by reacting a phosphatide of formula (II):



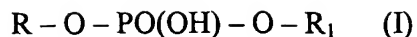
wherein R is diacylglycerol and R₂ is CH₂ – CH₂ – NH₂ or CH₂ – CH₂ – N(CH₃)₃, with a primary or secondary alcohol with a chain length of between C2 to C4, optionally substituted with one or more polar groups selected from the group consisting of amino, hydroxy and carboxy, in a single aqueous phase in the presence of an effective amount of phospholipase D with transphosphatidylation activity produced from a *Streptomyces hachijoense* strain to catalyze the reaction.

4. A phosphatidyl-L-serine product having a fatty acid composition identical to that of egg lecithin and a degree of peroxidation of less than 5 produced by reacting a phosphatide of formula (II):



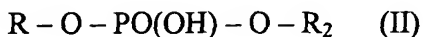
wherein R is diacylglycerol and R₂ is CH₂ – CH₂ – NH₂ or CH₂ – CH₂ – N(CH₃)₃, with a primary or secondary alcohol with a chain length of between C2 to C4, optionally substituted with one or more polar groups selected from the group consisting of amino, hydroxy and carboxy, in a single aqueous phase in the presence of an effective amount of phospholipase D with transphosphatidylation activity produced from a *Streptomyces hachijoense* strain to catalyze the reaction.

5. A pharmaceutical composition comprising a pharmaceutically acceptable carrier and a phosphatide of formula (I)



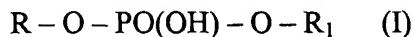
wherein R is diacylglycerol and R₁ is an hydroxyl group,

made by the process of reacting a phosphatide of formula (II):



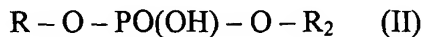
wherein R is diacylglycerol and R₂ is CH₂ – CH₂ – NH₂ or CH₂ – CH₂ – N(CH₃)₃, with a primary or secondary alcohol with a chain length of between C2 to C4, optionally substituted with one or more polar groups selected from the group consisting of amino, hydroxy and carboxy, in a single aqueous phase in the presence of an effective amount of phospholipase D with transphosphatidylolation activity produced from a *Streptomyces hachijoense* strain to catalyze the reaction to obtain said phosphatide according to formula (I).

6. A cosmetic composition comprising a pharmaceutically acceptable carrier and a phosphatide of formula (I)



wherein R is diacylglycerol and R₁ is an hydroxyl group,

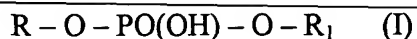
made by the process of reacting a phosphatide of formula (II):



wherein R is diacylglycerol and R₂ is CH₂ – CH₂ – NH₂ or CH₂ – CH₂ – N(CH₃)₃, with a primary or secondary alcohol with a chain length of between C2 to C4, optionally substituted with one or more polar groups selected from the group consisting of amino, hydroxy and carboxy, in a single aqueous phase in the presence of an effective amount of phospholipase D with

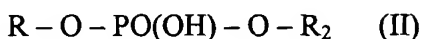
transphosphatidylation activity produced from a *Streptomyces hachijoense* strain to catalyze the reaction to obtain said phosphatide according to formula (I).

7. A food and dietary supplement comprising a carrier and a phosphatide of formula (I)



wherein R is diacylglycerol and R₁ is an hydroxyl group,

made by the process of reacting a phosphatide of formula (II):



wherein R is diacylglycerol and R₂ is CH₂ – CH₂ – NH₂ or CH₂ – CH₂ – N(CH₃)₃, with a primary or secondary alcohol with a chain length of between C2 to C4, optionally substituted with one or more polar groups selected from the group consisting of amino, hydroxy and carboxy, in a single aqueous phase in the presence of an effective amount of phospholipase D with transphosphatidylation activity produced from a *Streptomyces hachijoense* strain to catalyze the reaction to obtain said phosphatide according to formula (I).

8. The food and dietary supplement according to claim 7, wherein the phosphatide according to formula (I) is phosphatidyl-L-serine and wherein the *Streptomyces hachijoense* strain used to catalyze the reaction is ATCC 19769.

9. A pharmaceutical composition capable of being administered orally comprising a pharmaceutically acceptable carrier and the phosphatidyl-L-serine product according to claim 3 or 4.

10. A cosmetic composition for topical application to the skin comprising a pharmaceutically acceptable carrier and phosphatidyl-L-serine made by the process according to claim 3 or 4.

11. A food and dietary supplement capable of being administered orally comprising a carrier and phosphatidyl-L-serine made by the process according to claim 3 or 4.

12. A method of treating psycho-physical stress, attention, concentration and memory deficits commonly associated with advancing age, comprising administering a therapeutically effective amount of a pharmaceutical composition according to claim 5.

13. A method of treating dermatitis or skin with impaired physiological functions comprising applying a cosmetic composition according to claim 6 to the skin.

14. A method of treating psycho-physical stress, attention, concentration and memory deficits commonly associated with advancing age comprising administering a food and dietary supplement according to claim 7.

15. The pharmaceutical composition according to claim 5 in the form of a capsule, tablet or granule.

16. The cosmetic composition according to claim 6 in the form of a cream or a gel.

17. A food and dietary supplement according to claim 7 in the form of a capsule, tablet or granule.

18. A food and dietary supplement according to claim 11 in the form of a capsule, tablet or granule.

19. The food and dietary supplement according to claim 8, wherein the phosphatide of formula (II) is selected from the group consisting of purified soybean lecithin and crude soybean lecithin.
